

## CLAIMS

1. A solid titanium catalyst component for olefin polymerization comprising titanium, magnesium, halogen and an electron donor (b), which is obtained by bringing a solid adduct consisting of a magnesium compound and an electron donor (a) into contact with an electron donor (b) and a liquid titanium compound by at least one method selected from (A) a method of contacting the materials in a suspended state in the coexistence of an inert hydrocarbon solvent and (B) a method of contacting the materials plural times in divided portions.

2. The solid titanium catalyst component for olefin polymerization according to claim 1, wherein the electron donor (b) is a compound having two or more ether linkages.

3. The solid titanium catalyst component for olefin polymerization according to claim 3, whose particle diameter is 30 to 150  $\mu\text{m}$ .

4. A catalyst for olefin polymerization, comprising the solid titanium catalyst component for olefin polymerization described in any one of claims 1 to 3 and an organometallic compound catalyst component containing a metal selected from the groups I to III in the periodic table.

5. A process for olefin polymerization, which comprises polymerizing at least one olefin selected from ethylene and  $\text{C}_3\text{-}_{20}$   $\alpha$ -olefins by using the catalyst for olefin polymerization described in claim 4.